HYDROIDS FROM NEW SOUTH WALES.*

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(Communicated by A. R. McCulloch.)

(Plates xxx.-xxxi., and Text-fig.1.)

i. *Introduction.*

In 1911 Dr. Ritchie described, under the name of *Sertularella longitheca* Bale, var. *robusta*, several hydroid specimens obtained by the "Thetis" Trawling Expedition off the coast of New South Wales. He had only sterile specimens for examination, but several additional colonies bearing gonangia occur among some Polyzoa, which were dredged by the same Expedition in Newcastle Bight, N.S.W., at a depth of 26-40 fathoms. In view of the totally distinct gonangia, these specimens cannot be regarded as belonging to a variety of *Sertularella longitheca.* The characters are so distinct from those recorded, that it is necessary to raise Ritchie's variety to specific rank. The name *robusta* is preoccupied in the genus, and, therefore, I substitute *Sertularella ritchiei.*

The second species here under discussion is represented in the Australian Museum collection by some fine colonies from Maroubra Bay, near Sydney, N.S.W.

ii. *Description of the Species.*

Order **Calyptoblastea.**

Family SERTULARIDÆ.

Genus Sertularella Gray.

Sertularella ritchiei, nom.nov.

(Plate xxx., figs.1-2; Plate xxxi., fig.2; and Text-fig.1.)

Sertularella longitheca Bale, var. *robusta* Ritchie, Mem. Austr. Mus., iv., 16, 1911, p.841, Pl. lxxxviii., fig.8.

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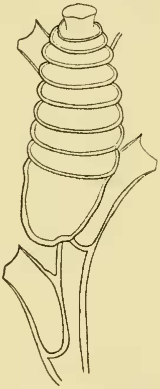
* Contributions from the Australian Museum.

Trophosome.—Colonies attaining a height of 40 mm. Stem monosiphonic, geniculate, lax in growth, with rare and irregular branches, which spring, with a long internode, from directly beneath a hydrotheca. The branches reach a length of 20 mm, and are divided into regular internodes, each of which bears a hydrotheca towards its distal extremity. The internodes are zig-zag, bending from one side or the other in gentle curves, which follow the inner lines of the hydrothecæ and give a geniculate form to the stem. In the older portions of the colonies, owing to the great thickness of the perisarc, the nodes usually become obscured, although a slight constriction immediately distal to a hydrotheca generally indicates their position. In the majority of the stems there is no trace of division into internodes.

The hydrothecæ are alternate and lie towards the distal ends of the internodes, to which they are adnate for about two-thirds of their length. They are remarkable for their great depth and for the length of the adnate portion. They are not quite tubular, but reach a maximum diameter at the point where they become free, tapering slightly downwards until they end in a rounded base, and less markedly towards the mouth. The margin of the hydrotheca is divided into three teeth, one adcauline, central and projecting, the others forming an abcauline lateral pair. The teeth are separated by shallow embayments. The free adcauline wall of the hydrotheca is marked by several definite undulations. The hydrothecal walls are strongly developed. There is a tendency to regeneration of the hydrothecæ, many of the margins being repeated twice or thrice. The colour of the colonies is dark brown.



Text-fig. 1.—*Sertularella ritchiei*, part of stem, with gonangium, seen from the anterior, × 16.

Gonosome.—The gonangia are borne on the stems and branches. They lie along the anterior of these, and are so closely appressed to the branch that the adcauline portion of the gonangium becomes hollowed out into a longitudinal furrow to fit it, as in the case of *Sertularella adpressa* Ritchie* and *Thecocladium flabellum* Allman†. The insignificant stalk of the gonangium arises from the side of the stem or branch opposite the base of a hydrotheca. The gonangia are large and ovate, with a short tubular neck with a slightly everted lip, and three short apical teeth. They are surrounded by eight annular ridges, except on the back where the longitudinal furrow, into which the annulations do not extend, is appressed to the branch. The lower proximal portion is smooth, or with very faint traces of annulation. The extreme distal portion of the gonangium projects forward, and has the ridges completely annular. The gonangia average 1·8 mm. to 2·1 mm. in length, by 0·70 mm. to 0·80 mm. in maximum diameter. The aperture has an internal diameter of 0·20 mm. to 0·24 mm., with a slightly everted lip 0·26 mm. to 0·31 mm. across.

Dimensions.

Internode, length	0·75-0·94 mm.
Internode, diameter	0·22-0·29 mm.
Hydrotheca, length adnate	0·57-0·66 mm.
Hydrotheca, length free	0·38-0·43 mm.
Hydrotheca, diameter at mouth	0·28-0·32 mm.
Gonangium, length	1·80-2·10 mm.
Gonangium, maximum diameter	0·70-0·80 mm.

As the above measurements show, there is some variation in the proportion of the adnate part of the hydrotheca, but the proportion is generally over a half, and frequently as much as two-thirds may be adnate.

In his Report on the Hydrozoa of the "Thetis" Expedition, Ritchie has described several specimens as a variety of *Sertularella longitheca* Bale, although "none of the characteristic gonangia were present, but in spite of this, and of the divergences from typical specimens. . . . I do not hesitate to regard these as belonging to a form of *Sertularella longitheca.*"* Additional colonies with gonangia were obtained from Newcastle Bight, N.S.W., and in view of the totally distinct structure and habit of the gonangia they cannot be associated with that species. I now raise Ritchie's variety to specific rank; the name *robusta* is preoccupied in the genus, and, therefore, I substitute *Sertularella ritchiei.*

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* Ritchie, Mem. Austr. Mus., iv., 16, 1911, p.838.

† Allman, Rep. Sci. Results "Challenger" Exped., Zool., xxiii., Hydroida, Pt. ii., 1888, p.81.

In the absence of gonangia, *Sertularella ritchiei* may be distinguished from *Sertularella longitheca* by its coarser growth, larger hydrothecæ, geniculated stem, and internodes which slope successively in opposite directions. The shapes of the hydrothecæ differ in the two species; in *S. longitheca* a hydrotheca is regularly tubular in shape; in *S. ritchiei* a hydrotheca is not quite tubular, but reaches a maximum diameter at the point where it becomes free, tapering slightly downwards until it ends in a rounded base, and less markedly towards the mouth. Also, as a general rule, the hydrothecæ of *S. ritchiei* are rather more curved, the lower portion being more erect, and the outward curvature of the upper part more marked than in *S. longitheca,* in which, however, the extreme top of the hydrotheca often shows a slight tendency to curve upward. The latter species, however, does not show any indications of rugosity on the free adcauline wall of the hydrotheca. The proportions of the hydrothecæ also differ; in *S. ritchiei* the hydrotheca is more robust, and is adnate for over a half, and for as much as two-thirds of its length; while in *S. longitheca* only from one-third to one-half of the hydrotheca is adnate. In *S. ritchiei* the embayments between the teeth on the margin of a hydrotheca are much shallower, and the teeth, therefore, appear less prominent than do those of *S. longitheca.* Lastly, the dimensions of *S. ritchiei* throughout are much larger.

Locality.—"Thetis" Station 22, Newcastle Bight, N.S.W., six to five miles from shore; depth, 40-26 fathoms; bottom, grey sand to mud and shell; 2nd March, 1898; several colonies with gonangia growing on the horny axis of an Alcyonarian.

Type Specimen.—In the Australian Museum, Sydney.

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* Ritchie, Mem. Austr. Mus., iv., 16, 1911, p.842.

Family PLUMULARIDÆ.

Genus HALICORNARIA Busk.

HALICORNARIA GONIODES, sp.nov.

(Plate xxx., figs. 3-7; Plate xxxi., fig. 1.)

Trophosome.—Hydrocaulus monosiphonic, 28 cm. in height, unbranched, or with a few branches near the summit. The main stem gives off at irregular intervals short peduncles, which spring from the front, curve upward, and fork into two branches, which diverge at right angles, and have their anterior aspect directed towards that of the stem. A perfect distinction is thus maintained between the stem and branches. The latter reach a length of 11 cm., and each may give rise, midway between its point of origin and its distal extremity, to a peduncle which also bifurcates into two new divisions. The peduncles are divided into internodes, usually eight or nine in number. They are devoid of hydroclades, but are armed with a series of large sarcothecæ along their anterior and posterior aspect. The stem is divided into internodes, which bear two hydroclades. In the branches, the internodes fall roughly into two size-groups—those on the lower part of the branch which bear two hydroclades, and those on the distal part, which, as a rule, bear only a single hydroclade each, and are about half the length of the former. The hydroclades are alternate, 10 mm. in length, both series springing from the anterior of the stem and branches. They are set at an angle of about 40°, and are divided into a series of internodes, each of which bears a solitary hydrotheca.

The hydrothecæ are sub-cylindrical, narrowing towards the base; the axis of the hydrotheca lying away from the hydroclade at an angle of about 45°. The thickened adcauline wall of the hydrotheca makes a very abrupt angle, and even in many cases is prolonged past the actual base of the cell. The apocauline wall meets the base at almost as sharp an angle, while the base itself is straight. The margin of the hydrotheca is scalloped into seven very distinct teeth, of which the median anterior one is well developed and slightly recurved; while the three, which occur on each side, occupy a more or less erect position, although the abcauline two show a tendency to bend outwards. The back is entire. There is no intrathecal ridge. The aperture between the hydrotheca and the internode is surrounded by minute sharp denticles projecting into the hydrotheca. There are no septal ridges in the internode.

The mesial sarcotheca is based on the much elongated proximal part of the internode, and projects at a wider angle than the hydrotheca, to the basal part of which it is adnate most of its length, but with a short free projecting portion. The mesial sarcotheca is small, and stops considerably short of the margin of the hydrotheca. The terminal and inferior apertures are distinct, though closely approximate. The terminal aperture is small and circular. The lateral sarcothecæ are adnate, saccate, with a circular sub-tubular orifice directed downwards from the hydrotheca and outwards, and distinct from the wide lateral aperture. There are three cauline sarcothecæ; two on the anterior surface of the rachis at the base of each hydrocladium, large and swollen, with two circular orifices bordering the free margin; the third is similar to the laterals in shape and is situated at the back of each axil.

Gonosome.—Unknown.

Colour.—Light brown, stem and branches darker.

Dimensions.

Stem internode, length	0·71-0·78 mm.
Stem internode, diameter	0·38-0·43 mm.
Branch internode, length	0·38-0·73 mm.
Branch internode, diameter...	0·24-0·29 mm.
Hydroclade internode, length	0·33-0·36 mm.
Hydroclade internode, diameter	0·19-0·22 mm.
Hydrotheca, depth	0·23-0·24 mm.
Hydrotheca, breadth at mouth (lateral aspect) ...	0·19-0·21 mm.
Anterior cauline sarcotheca, greatest width ...	0·14-0·17 mm.

The habit of the colonies is striking. The stems spring from a dense mass of hydrorhizal filaments and either remain simple, or towards their distal extremity give off, at irregular intervals, two or three short peduncles. These spring from the front of the hydrocaulus, and, at their origin, are directed forward, so as to take them out of the plane of the stem; soon, however, they take a characteristic curve upward, become erect, and divide into two equal branches with their anterior aspect directed towards that of the stem. Each successive branch grows in the same manner. The hydroclades are borne on the anterior of the stem and branches, often only one on an internode on the distal part of a branch. Sometimes an internode occurs with three hydroclades.

Another striking feature is the angularity of the hydrotheca, especially at the base where the thickened adcauline wall makes a very abrupt angle, and even in many cases is prolonged past the actual base of the cell. The apocauline wall meets the base at almost as sharp an angle, while the base itself is straight. The chitinous projection within the mesial sarcotheca is well-developed, swelling out as soon as it passes beyond the point of attachment of the sarcotheca. The latter organ has a very wide basal portion, and is based on the much elongated proximal part of the internode.

Locality.—Maroubra Bay, near Sydney, N.S.W.

Type Specimen.—In the Australian Museum, Sydney.

EXPLANATION OF PLATES XXX.-XXXI.

Plate xxx.

Fig. 1.—*Sertularella ritchiei* Briggs, part of stem with hydrothecæ and base of branch, × 20. (After Ritchie).

Fig. 2.—*Sertularella ritchiei* Briggs, part of stem with hydrothecæ, × 33.

Fig. 3.—*Halicornaria goniodes* Briggs, portion of hydroclade with hydrothecæ, lateral aspect, × 48.

Fig. 4.—*Halicornaria goniodes* Briggs, portion of hydroclade with hydrothecæ, anterior aspect, × 62.

Fig. 5.—*Halicornaria goniodes* Briggs, hydrotheca, lateral aspect, × 90.

Fig. 6.—*Halicornaria goniodes* Briggs, hydrotheca, anterior aspect, × 80.

Fig. 7.—*Halicornaria goniodes* Briggs, part of stem with the bases of four hydroclades, anterior aspect, × 30.

Plate xxxi.

Fig. 1.—*Halicornaria goniodes* Briggs. Photograph of the type, 28 cm. in height, from Maroubra Bay, near Sydney, N.S.W.

Fig. 2.—*Sertularella ritchiei* Briggs. Photograph of colonies from "Thetis' Station 22, Newcastle Bight, N.S.W., 40-26 fathoms. Nat. size.

CORRIGENDUM.

The legend of Plate xxx. should read :—

1-2. *Sertularella ritchiei*, nom. nov. 3-7. *Halicornaria goniodes*, n. sp.